

Daniel B. Ward

Department of Botany, Agricultural Experiment Station  
University of Florida, Gainesville, Fla.

ABSTRACT: An amplified key is presented to the 6 native and 2 naturalized species and species-hybrids of *Nymphaea* (Nymphaeaceae) found in the state of Florida, U.S.A. The key is supplemented with discussion of nomenclature and morphology. *Nymphaea odorata* is seen to consist of 2 varieties, one described as new. *Nymphaea blanda* and *N. jamesoniana*, two species of the South American subgenus *Hydrocallis*, are newly reported for Florida and the United States, as apparent natives. A hybrid between *N. mexicana* and *N. odorata* is newly described and named. *Nymphaea capensis* and *N. X daubeniana* are reported as naturalized in the state.

The water-lilies of Florida are significantly more varied than is generally appreciated, both by reason of plants escaped and naturalized from horticulture, and by virtue of overlooked tropical species as well as regional patterns of variation and hybridization.

In North America surely the most intractable systematic problem within *Nymphaea* centers on *N. odorata* Ait. This species occurs as a native from southeastern Manitoba, eastward through the Great Lakes states and provinces to Newfoundland and the northeastern United States, south largely on the Coastal Plain to Florida, along the Gulf Coast to Texas and south at least to eastern Nicaragua. Although horticultural selections are now widely introduced and escaped inland, the species originally was largely absent in the interior of the United States. Morphological differences within this elongate native range have been acknowledged by the employment of regional infraspecific taxa: var. *maxima* (Conard) Boivin in Ontario and Quebec, var. *rosea* Pursh on Cape Cod, Massachusetts, var. *minor* Sims in New Jersey, var. *stenophylla* Fern. in Virginia, var. *gigantea* Tricker in Florida, and var. *villosa* Casp. in Texas. The significance of these variants, and the degree of their separation from each other and from typical var. *odorata*, is greatly in need of investigation. It seems probable that at least some of these entities do not merit recognition even at the varietal level.

---

<sup>1</sup> This paper is Florida Agricultural Experiment Station Journal Series No. 399.

In Florida, however, it is useful to add still a further variety to the above array. In the sandhill lakes of the Florida panhandle, extending east to perhaps Perry, Taylor County, the preponderant white-flowered water-lily is consistently smaller, more delicate, and largely distinguishable, both in the field and in the herbarium, from the robust var. *gigantea*. The differences are more fully denoted in the accompanying key. From var. *odorata* (and from var. *minor* if that entity is considered separable) the flowers are readily distinguished in that the petals and sepals of the West Florida variant are more slenderly ovate; in proportion the perianth parts are similar to those of var. *gigantea*, the flowers of both presenting a more stellate open aspect than those of the rather closely imbricated camellia-like var. *odorata*.

In size, all parts of the West Florida plant are smaller than those corresponding in var. *gigantea* when both plants are fully developed. As with other species of *Nymphaea*, however, the leaves and particularly the flowers are subject to dwarfing under adverse conditions; the habitats preferred by var. *gigantea* are particularly prone to unseasonal drought, yielding flowers and leaves one season that are less than half the dimension observed on the same plants at another time. This variability, coupled with the tendency of the flowers to increase in size somewhat after anthesis, has obscured a pattern of morphological dissimilarity that deserves recognition. A long-continued interest in this problem, together with an extensive series of excellently prepared specimens generously made available for this study, justifies honoring Dr. Robert K. Godfrey, Tallahassee, Florida.

*Nymphaea odorata* Ait. var. *godfreyi* Ward, var. nov.

~~~~~

Differt a varietate typica sepalis et petalis gracilioribus minusque imbricatis; differt a varietate *gigantea* floribus parvioribus, foliis parvioribus infra aequae atomarroninis, petiolis et pedunculis similibus filo metallico, rhizomatibus gracilioribus. Holotype: Sandhills pond or small lake, 2 miles south of Crystal Lake, Bay County, Florida. R. K. Godfrey & R. D. Houk 61557, 6 Oct 1961 (GH - 3 sheets). Isotypes: (FLAS, FSU). Topotypes: E. S. Ford 4559, 13 Aug 1954 (FLAS); R. K. Godfrey 59850, 15 June 1960 (FSU).

At infrequent intervals a large-flowered yellow water-lily is found in the state, by its size outside the scale of *N. mexicana* and by its color not *N. odorata* var. *gigantea*. It appears to be a natural hybrid of these two parents and occurs only where both are present. Fruits have neither been collected nor observed, and the putative hybrid is believed to be sterile. A horticultural hybrid of these two species has long been known, but is perhaps derived from *N. odorata* var. *odorata*; it too is sterile. The natural hybrid may first have been collected by R. Kral in the St. Johns

River (Kral 5523, 22 Aug 1957, FSU). It has been collected repeatedly in the marshes of Wakulla County. The most northern collection that appears to represent this hybrid is from Sapelo Island, Georgia (Duncan 20149, FLAS, FSU, GA, USF).

This attractive plant has no legitimate name at the specific level. As a hybrid, it can, of course, be referred to as *Nymphaea mexicana* X *N. odorata* var. *gigantea*, but there are occasions where a binomial designation is preferable. The earliest nomenclaturally legitimate combination referring to a hybrid between these species may be *Nymphaea odorata* var. *sulphurea* Conard; yet a later name preempts the specific rank and prohibits transfer of this most appropriate epithet. To avoid the uncertainty of the parentage of this horticultural hybrid, yet to preserve at least the meaning of Conard's epithet and to provide continued association with the name Sulphur Water-lily, the following epithet is chosen.

Nymphaea X *thiona* Ward, *hyb. nov.*

~~~~~

Hybrida naturalis e *Nymphaea mexicana* Zucc. et *N. odorata* Ait. var. *gigantea* Tricker exorta, ad illud colore floris, ad hoc magnitudine floris; plantae steriles. Perhaps *Nymphaea odorata* var. *sulphurea* H. S. Conard in L. H. Bailey, *Cyclopedia of American Horticulture*, p. 1106. 1901. Not *Nymphaea sulfurea* Gilg, in H. Baum, *Kunene Sambesi Expedition*, p. 235. 1903. Holotype: In drainage canals through marshes, St. Marks Wildlife Refuge, along Lighthouse Road, Wakulla County, Florida. C. Hoy 10A, 15 Apr 1962 (GH - 4 sheets). Topotypes: C. Hoy 12, 1 Oct 1961 (FSU - flower dissected); R. K. Godfrey 5779a, 15 Sept 1958 (FSU - 3 sheets).

Perhaps the most intriguing event to occur during recent studies of *Nymphaea* in Florida was the discovery of two species of subgenus *Hydrocallis*, a largely South American subgenus characterized in part by night-blooming flowers. These species, *N. blanda* and *N. jamesoniana*, are rare or at least inconspicuous, and very few collections are known. Yet all indications point to their native status, and it is hoped that this notice will produce further information about their range and habits. The history of their discovery and the long but only partially successful effort made in the recent past to gain further knowledge of these species has been detailed elsewhere (D. B. Ward, *Florida Scientist* 40: 155-159. 1977).

Two plants better known in cultivation are here treated as having become part of the state's flora. *Nymphaea* X *daubeniana*, a blue-flowered hybrid quite similar to the native *N. elegans*, is well established at a number of stations mostly along the East Coast. A spectacular scallop-edged African species, probably

correctly treated as *N. capensis* var. *zanzibariensis*, is locally established in Indian River and Seminole counties; its first collection (Kral 5553, FSU, USF) was reported as a range extension of the largely southern *N. elegans* (R. K. Godfrey & R. Kral, Brittonia 10:168. 1958).

Nymphaea L.

## Water-lilies

1. Leaf margins deeply sinuate-dentate, the blades 20 - 30 cm. across, suffused with maroon beneath; petals blue to lavender; sepals obscurely many-nerved, without dark lines or spots; escaped from cultivation, locally abundant in sand-bottomed ditches, Indian River County (south of Vero Beach) and Seminole County (near Sanford). May - September. [With many horticultural variations; the Florida escape may be var. *zanzibariensis* (Casp.) Conard.]  
CAPE BLUE WATER-LILY. N. capensis Thunb.
  
1. Leaf margins entire or slightly sinuate (if sinuate, the blades smaller and petals usually not blue; if blue, the sepals with dark lines or spots on back); petals blue, yellow, or white.
  
2. Petals blue (at times very pale, almost white, but always with a bluish tinge which deepens on drying); sepals with short (1 - 4 mm.) purple lines or spots on back; carpels not fully fused, the partition between ovary cells double-walled.
  
3. Leaves usually wine-red beneath; upper surface of blade without mound of tissue or viviparous plantlet; papillae (protruding tips of transverse sclereids) more closely spaced over veins; petals very faint blue to medium blue; sepals (at anthesis) 4 - 4.5 (- 5.5) cm. long, lengthening somewhat in fruit; shallow ponds of cypress swamps or open marl prairie, and in roadside ditches, locally frequent; south Florida (Dade, Monroe (excluding the Keys), Collier, southern Hendry counties), disjunct to Hernando County (Brooksville). August - November. [*Castalia elegans* (Hook.) Greene]  
EVERGLADES WATER-LILY. N. elegans Hook.
  
3. Leaves usually green beneath; upper surface of blade with mound of fibrous tissue (rarely with viviparous plantlet) at point above attachment of petiole; papillae densely and uniformly spaced over surface; petals medium to bright blue; sepals (at anthesis) 5 - 6 cm. long; occasional escape from cultivation, ditches and borrow

pits, mostly Florida east coast, particularly Brevard County, north to Nassau County. August - September. [Horticultural hybrid, derived in part from *N. micrantha* Guill. & Perr. of West Africa.]

DAUBEN WATER-LILY.

N. X daubeniana O. Thomas

2. Petals white or yellow; sepals with fine closely-spaced lines many mm. long on back, or plain; carpels fully fused, the partition between the ovary cells single-walled.
4. Flowers night-blooming; petals white; sepals with fine closely-spaced longitudinal crimson lines; upper surface of leaf covered both with papillae (tips of transverse sclereids) and short lines (horizontal sclereids); styles clavate.
5. Leaf blade suborbicular, green above and below, thin and easily torn; shallow water of ponds and sloughs, inconspicuous (because of nocturnal flowers) and probably rare; west peninsular Florida: Levy County (Lebanon Station) to Citrus County (Lake Tsala Apopka), possibly to Hillsborough County. September - October. [Florida collections are var. *fenzliana* (Lehm.) Casp., with glabrous petioles and peduncles.] SLEEPING-BEAUTY WATER-LILY. N. blanda G. F. W. Meyer
5. Leaf blade ovate-cordate to elliptic, green above and purple below (the pigment restricted to numerous short forking dark-purple lines), firm in texture; rare, shallow pond in floodplain of Peace River, DeSoto County (northwest of Arcadia). October - November. N. jamesoniana Planch.
4. Flowers day-blooming; petals white or yellow; sepals without longitudinal crimson lines; upper surface of leaf covered only with papillae; styles linear.
6. Seeds 2 - 3 mm. in diameter; petals white or with slight yellowish tinge at base; leaves orbicular, the petiole nearly central; overwintering by elongate rhizome, without clusters of banana-like roots.
7. Flower often large, the sepals to 6 - 10 cm. long; leaves medium to large (to 45 cm. broad), maroon beneath but with veins usually greenish; petioles and peduncles thick, spongy; rhizome stout (2 - 4 cm. thick); streams, ponds, edge of lakes, openings in cypress swamps, in ditches and canals, often common; nearly throughout, but rare in south

Florida (absent in Keys), largely replaced in west by the following variety. May - October. [*Castalia lekophylla* Small]

WHITE WATER-LILY.

N. odorata Ait.

var. gigantea Tricker

7. Flowers small, the sepals 3.5 - 6 cm. long; leaves small to medium (8 - 20 cm. broad), uniformly dark maroon beneath; petioles and peduncles thin, wiry; rhizome slender (1 - 2 cm. thick); shallow acid sand-bottomed ponds, local; west Florida, east to Wakulla and Taylor counties. April - October.

N. odorata Ait.

var. godfreyi Ward

6. Seeds 4 - 5 mm. in diameter if formed; petals clear sulphur yellow; leaves orbicular or often ovate, with the petiole inserted closer to the basal lobes than to the apex.

8. Plants fertile, fruits forming from pollinated flowers; petals sharply acute; flowers small, the sepals 3 - 5 cm. long; plants overwintering by a short stem to which are attached several descending curved fleshy roots, 1.5 - 3.5 cm. long, resembling miniature bananas; shallow marshes, ditches, occasionally in spring runs; infrequent but widespread, perhaps absent south of Broward County (Hugh Taylor Birch State Park) and west of the Apalachicola River. April - October. [*Castalia flava* (Leitner) Greene]

YELLOW WATER-LILY.

N. mexicana Zucc.

8. Plants sterile, fruit never forming; petals acute to slightly rounded; flowers large, the sepals 5 - 8 cm. long; plants overwintering by a short rhizome from which extend long slender stolons; streams and marshes, rare, known in Florida only along the St. Johns River between Brevard and Orange counties, and near St. Marks, Wakulla County. [A natural hybrid of *N. mexicana* and *N. odorata*.] April - October. [*N. odorata* Ait. var. *sulphurea* Conard in Bailey]

SULPHUR WATER-LILY.

N. X thiona Ward